

## **ABSTRACT**

The present invention includes an apparatus and methods for differentially perfusing a patient undergoing cardiopulmonary bypass. A cardiopulmonary bypass machine is configured to provide hypothermic oxygenated blood and normothermic oxygenated blood to an aortic balloon catheter. The catheter has arch perfusion ports and corporeal perfusion ports and is introduced into a patient's aorta and navigated transluminally until the occlusion balloon is located in the descending aorta. The occlusion balloon is inflated and hypothermic oxygenated blood is perfused to the arch vessels while normothermic oxygenated blood is perfused to the corporeal circulation. This procedure offers the benefit of cerebral protection from embolic events during cardiopulmonary bypass surgery.